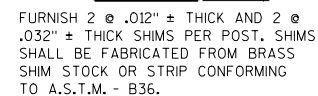
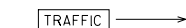
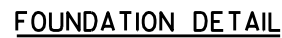


(SEE TABLE FOR DIMENSIONS)



SHIM DETAIL



POST ON THE RIGHT

POST ON THE LEFT

POST SLOT ORIENTATION

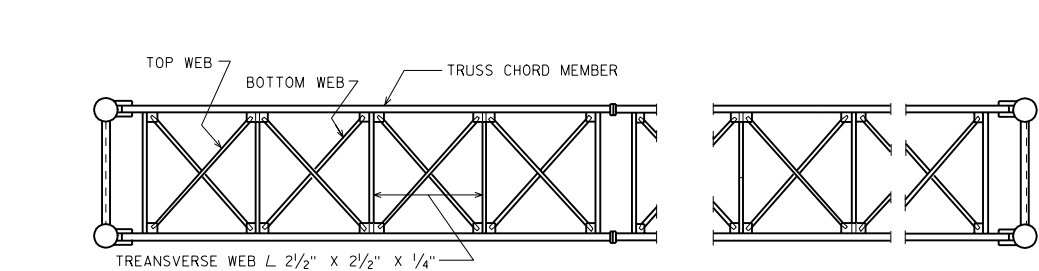


	TYPE	#3-VERTICAL	#4-HOOPS
REINF.	A	8 @ 4'-5"	5 @ 6'-3"
	B	8 @ 6'-5"	7 @ 6'-3"
	C	8 @ 6'-11"	7 @ 6'-3"
	D	8 @ 7'-5"	8 @ 6'-3"
	E	8 @ 7'-11"	9 @ 6'-3"

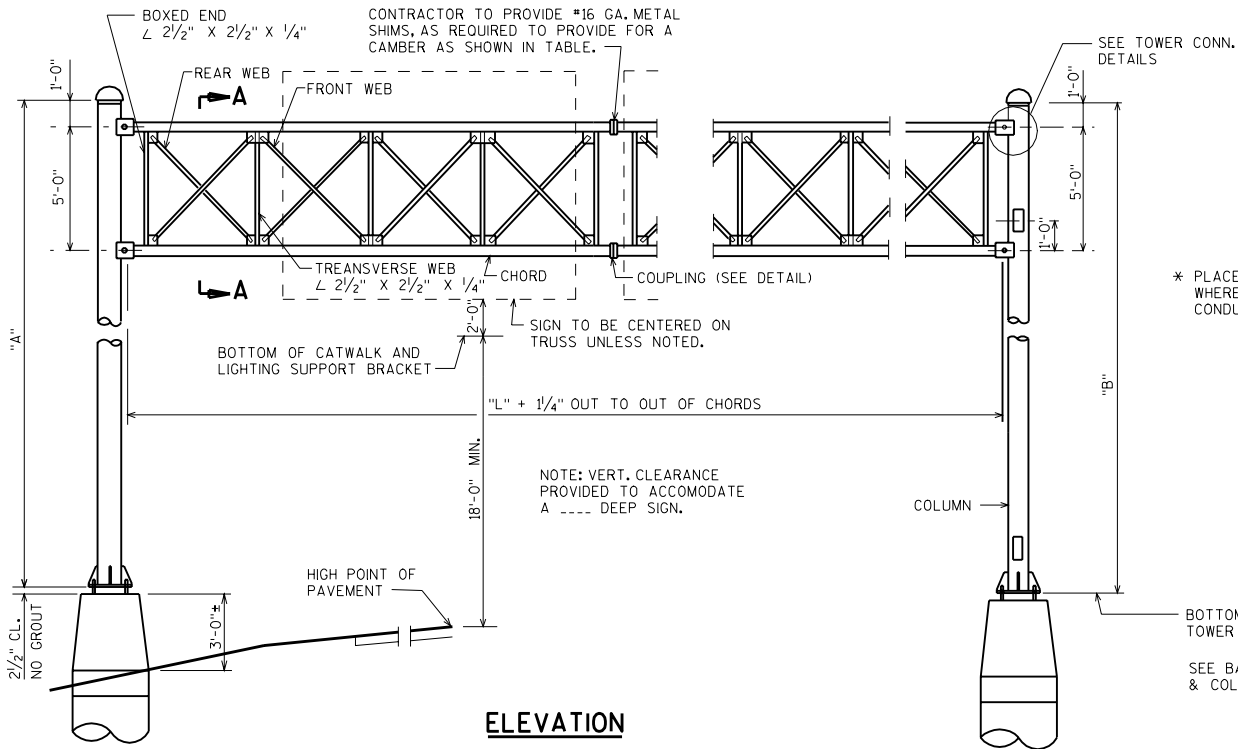
STRUCTURAL CARBON STEEL PAY WTS. (1POST) = K + (POST LENGTH X POST WT.)
 "K" INCLUDES STUB, BASE PLATES, STIFFS., BOLTS, AND WASHERS.

NOTE:
TIGHTEN THE HIGH STRENGTH BOLTS TO THE TORQUE SHOWN.
DO NOT OVER TIGHTEN.

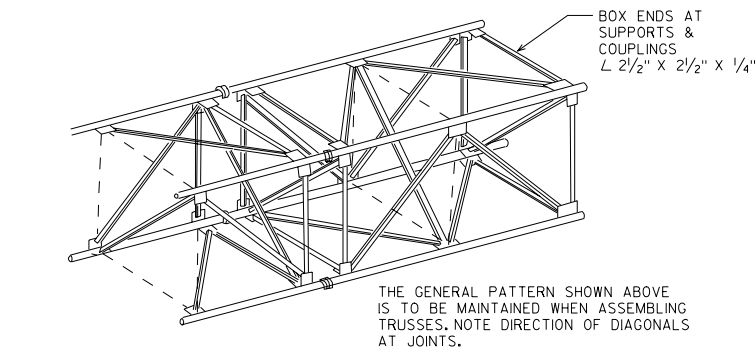
STANDARD	39.1
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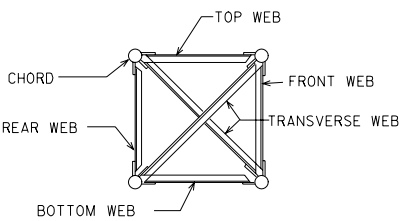
PLAN



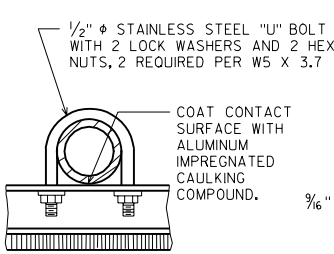
ELEVATION



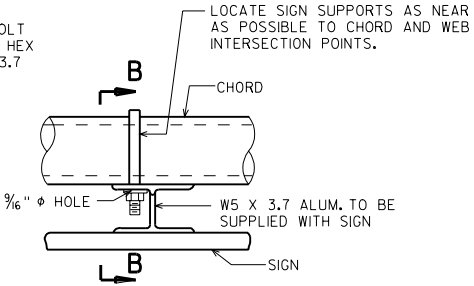
TYPICAL TRUSS SECTION



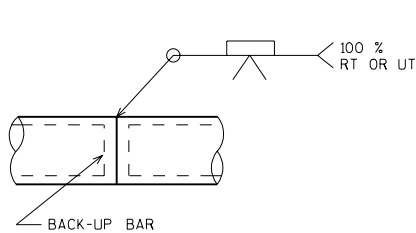
SECTION A



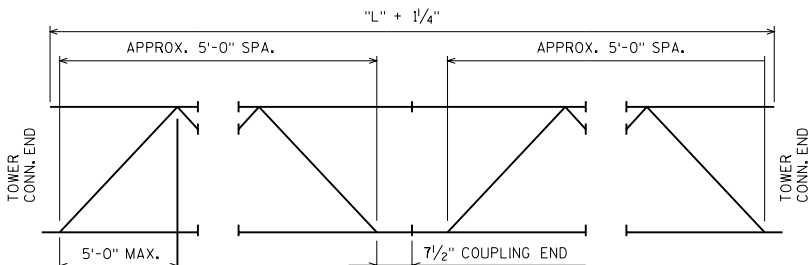
SECTION B



TYPICAL SIGN CONNECTION



CHORD SPLICE



TRUSS ARRANGEMENT

FABRICATOR MAY MAKE TRUSSES ANY LENGTH KEEPING A SECTION A MINIMUM OF 20'-0" & A MULTIPLE OF 5'-0". CHORD FIELD SPLICES SHALL BE MADE WITH COUPLINGS. CHORD SHOP SPLICE SHALL BE THE WELDED SPLICE SHOWN ABOVE.

NOTES

DRAWINGS SHALL NOT BE SCALED.
STEEL COLUMN PIPE SHALL BE A.P.I. SPEC. 5L GRADE X42 Fy = 42,000 P.S.I.
ALL STEEL PIPE MEMBERS OF TRUSS SHALL BE A.P.I. SPEC. 5L GRADE X42 Fy = 42,000 P.S.I.
PLATES, BARS, STRUCTURAL ANGLES SHALL BE A.S.T.M. A709 GRADE 36 Fy = 36,000 P.S.I.
ALL STRUCTURAL STEEL MEMBERS SHALL BE GALVANIZED.
ALL BOLTED CONNECTIONS SHALL BE MADE WITH 3/4" ϕ A325 BOLTS, GALVANIZED A.S.T.M. A153, CLASS C.
WELDED CONNECTIONS CAN BE USED IN LIEU OF BOLTED CONNECTIONS, IF UNIT CAN BE GALVANIZED IN ONE PIECE.
STEEL ANCHOR BOLTS SHALL BE A.A.S.H.T.O. M314-90 GRADE 55, Fy = 55,000 P.S.I.
SIGNS OR BLANKS SHALL BE INSTALLED ON TRUSS AT TIME OF ERECTION.
BLANKS SHALL BE 1/4 THE LENGTH OF THE BRIDGE, 2'-0" DEEPER THAN C TO C OF CHORDS & SHALL BE CENTERED ON THE BRIDGE. SIGNS SHALL BE AS DESIGNATED IN PLANS.
THE UPPER 12" OF ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE A.A.S.H.T.O. SPECIFICATION AS STATED IN SECTION 641. OF THE WIS. D.O.T. STANDARD SPECIFICATIONS.
WELD TEST AS PER AWS D1.1.

DESIGN DATA

DEAD LOAD - WT. OF SIGN, SUPPORTING STRUCTURE, CATWALK, LIGHTS AND RAILINGS.
LIVE LOAD - SINGLE LINE LOAD OF 500 LBS. DISTRIBUTED OVER 2'-0" OF CATWALK.
ICE LOAD - 3 P.S.F. TO 1FACE OF SIGN & AROUND SURFACE OF MEMBERS.
WIND PRESSURE - 85 M.P.H. TO SIGN AREA & EXPOSED MEMBERS.

WIND COMPONENTS	NORMAL	TRANSVERSE
COMBINATION 1	1.0	0.2
COMBINATION 2	0.6	0.3
GROUP LOADS	% OF ALLOWABLE STRESS	
1. DEAD	100	
2. DEAD + WIND	140	
3. DEAD + ICE + 25 P.S.F. WIND	140	

TABLE

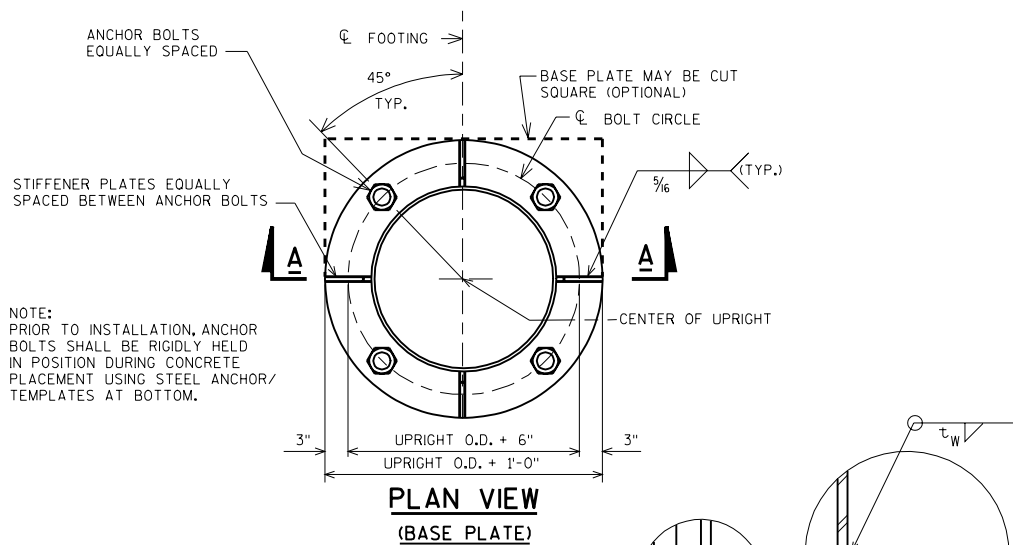
STRUCTURE	A	B	C	CHORDS O.D. X THK.	TOP & BOTTOM WEB	FRONT & REAR WEB	COUPLING PLATE "D1" & "T"	BOLT CIRCLE DIA. "D2"	NO. OF BOLTS IN COUPLING	CAMBER	COLUMN O.D. X THK.	TOWER WEBS	"L"

TO BE DESIGNED

4-CHORD GALVANIZED STEEL
SIGN BRIDGE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

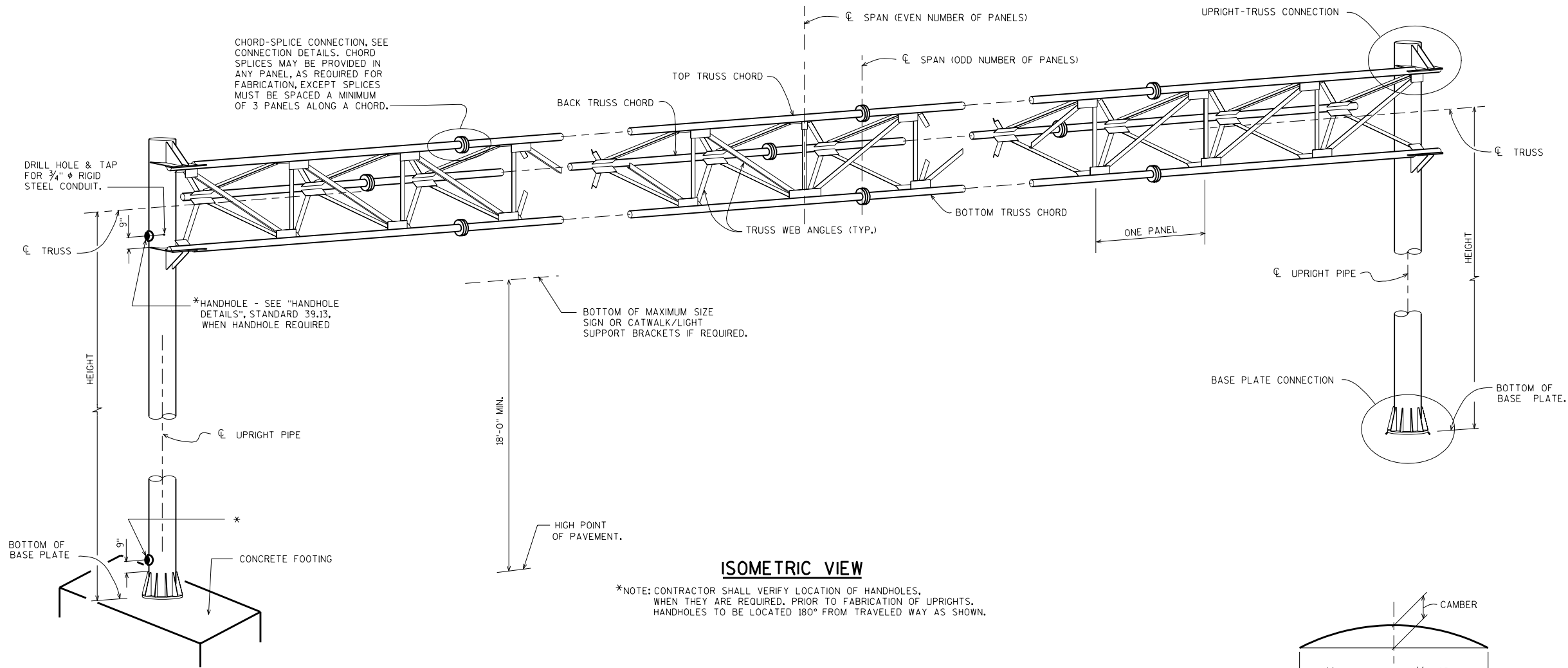
APPROVED: _____ DATE: 1/99



COUPLING DETAIL

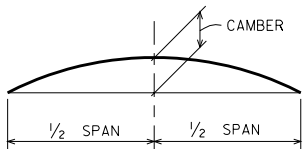
STRUCTURE	COLUMN O.D. X THK.	ANCHOR BOLTS	BASE PLATE THICKNESS (IN.)	STIFFENER PLATE THICKNESS (IN.)	STIFFENER PLATE HEIGHT (IN.)	τ_w (IN.)

STANDARD	39.3
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ISOMETRIC VIEW

*NOTE: CONTRACTOR SHALL VERIFY LOCATION OF HANDHOLES, WHEN THEY ARE REQUIRED. PRIOR TO FABRICATION OF UPRIGHTS, HANDHOLES TO BE LOCATED 180° FROM TRAVELED WAY AS SHOWN.



CAMBER DIAGRAM

SPAN SIGN STRUCTURE NOTES

- 1) SIGN STRUCTURE MATERIALS SHALL BE AS FOLLOWS:
UPRIGHT & CHORDS (STEEL PIPE) -> API-5L-X42 (42,000 P.S.I. YIELD)
WEBS AND SPLICES (STEEL ANGLES) -> ASTM A709 GRADE 36
STEEL PLATES -> ASTM A709 GRADE 36
WELD METAL -> E70XX
BOLTS (EXCEPT ANCHOR BOLTS) -> ASTM A325

2) STEEL ANCHOR BOLTS SHALL BE AASHTO 314 GRADE 55, NUTS FOR ANCHOR BOLTS SHALL BE ASTM A563 GRADE A HEAVY HEX.

3) ALL STEEL ITEMS SHALL BE GALVANIZED AS FOLLOWS:
STRUCTURAL SHAPES AND PLATES -> ASTM A 123
ALL NUTS, BOLTS AND WASHERS -> ASTM A 153 CLASS C OR D DEPENDING ON SIZE

4) ALL HIGH STRENGTH BOLTS, NUTS, AND WASHERS, EXCEPT ANCHOR BOLTS AND SIGN CONNECTION U-BOLTS SHALL MEET THE REQUIREMENTS OF STANDARD SPEC. 506.2.5 AND BE INSTALLED IN ACCORDANCE WITH STANDARD SPEC. 506.3.12. ANCHOR BOLTS SHALL HAVE DOUBLE NUTS.

5) CONCRETE SHALL BE GRADE A WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH (F'c) OF 3,500 P.S.I. FOR ALL ENVIRONMENTAL CLASSIFICATIONS.

6) REINFORCING STEEL SHALL BE ASTM A615 GRADE 60.

7) ALTERNATE DESIGNS FOR THIS STRUCTURE ARE NOT ALLOWED. DIFFERENT SIZE AND STRENGTH OF MEMBERS MAY BE SUBSTITUTED WITH THE APPROVAL OF THE OFFICE OF DESIGN.

8) DO NOT GROUT THE SPACE BETWEEN TOP OF FOOTING AND BOTTOM OF BASE PLATE.

9) SHOP DRAWINGS FOR THIS STRUCTURE ARE REQUIRED AND FABRICATION SHALL NOT BEGIN UNTIL THESE SHOP DRAWINGS ARE APPROVED.

10) THE STRUCTURE MUST BE ASSEMBLED AFTER GALVANIZING AND PRIOR TO SHIPMENT TO THE SITE TO ASSURE FIT UP. IT MAY BE DISASSEMBLED IN SECTIONS FOR SHIPPING. ALL HIGH STRENGTH BOLTED CONNECTIONS (WEB TO CHORD GUSSET) BETWEEN CHORD SPLICE POINTS SHALL BE FULLY TIGHTENED IN THE SHOP. THE TOWER/CHORD, CHORD SPLICE, AND ACROSS THE SPLICE WEB TO CHORD GUSSET CONNECTIONS SHALL BE FULLY TIGHTENED IN FIELD.
- 11) THE DESIGN WIND SPEED IS 85 M.P.H. WITH A 30 PERCENT GUST FACTOR.

12) PROVIDE A CAMBER WITH THE MAXIMUM UPWARD DEFLECTION AS CALLED FOR ON THE CAMBER DIAGRAM. INDICATE ON THE SHOP DRAWINGS THE METHOD TO BE USED TO PROVIDE THE REQUIRED CAMBER.

13) SIGN PANELS ATTACHED TO THE TRUSS SHALL BE CENTERED (IN ELEVATION) ON THE STRUCTURE. SIGN PANELS SHALL BE ALUMINUM.

14) EXCEPT FOR ANCHOR BOLTS, ALL BOLT HOLE DIAMETERS SHALL BE EQUAL TO THE BOLT DIAMETER PLUS 1/16". PRIOR TO GALVANIZING, HOLE DIAMETERS FOR ANCHOR BOLTS SHALL NOT EXCEED THE BOLT DIAMETER PLUS 1/2".

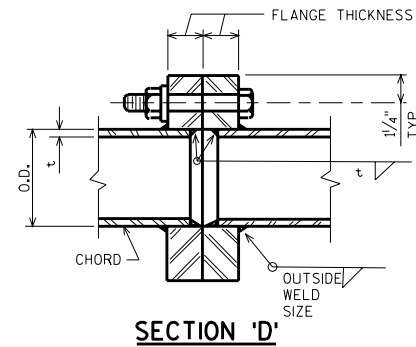
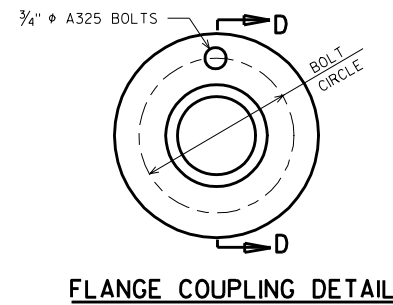
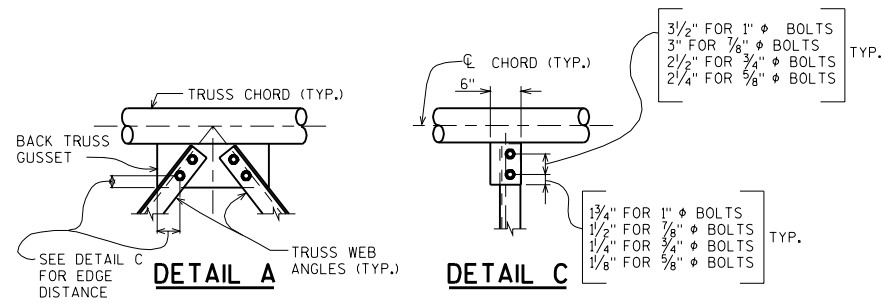
15) CONTRACTOR SHALL ATTACH SIGN PANELS TO THE TRUSS CHORDS AS SHOWN ON "TYPICAL SIGN CONNECTION", STANDARD 39.5. SIGN PANELS AND HARDWARE REQUIRED TO ATTACH SIGNS TO TRUSS CHORDS, INCLUDING ALL W5 X 3.7 ALUMINUM SIGN SUPPORT BRACKETS, U-BOLTS, AND POST CLIP HARDWARE, WILL BE SUPPLIED AND DELIVERED TO SITE BY OTHERS.

16) ANCHOR BOLTS SHALL BE PROVIDED WITH TEMPLATES TOP AND BOTTOM TO MAINTAIN VERTICAL ALIGNMENT AND SPACING DURING CONCRETE PLACEMENT. TEMPLATES MAY NOT BE WELDED TO THE ANCHOR BOLTS.

17) SIGNS OR BLANKS SHALL BE INSTALLED ON TRUSS AT TIME OF ERECTION. BLANKS SHALL BE 1/4 THE LENGTH OF BRIDGE, 2'-0" DEEPER THAN C TO C OF CHORDS & SHALL BE CENTERED ON THE BRIDGE.

18) SHOP WELDED CONNECTIONS MAY BE USED IN LIEU OF BOLTED CONNECTIONS IN TRUSS IF UNIT CAN BE GALVANIZED IN ONE PIECE.

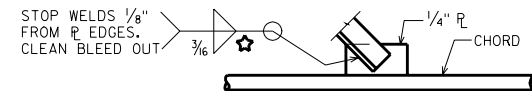
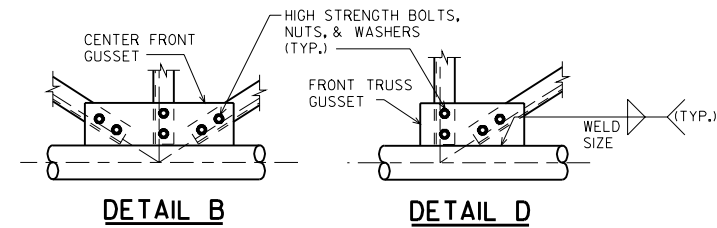
3-CHORD STEEL SIGN BRIDGE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DEVELOPMENT SECTION	
APPROVED: _____	DATE: 1/99



COUPLING DESIGN

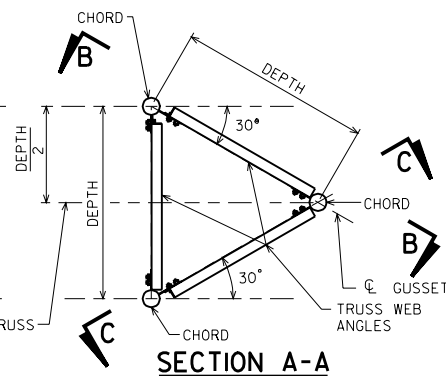
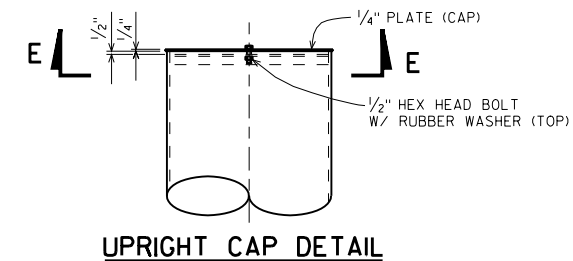
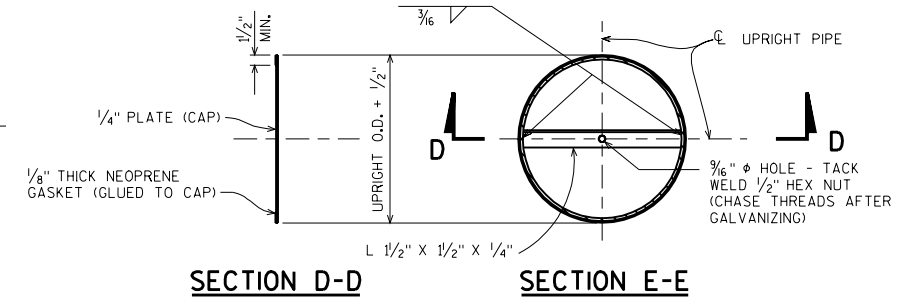
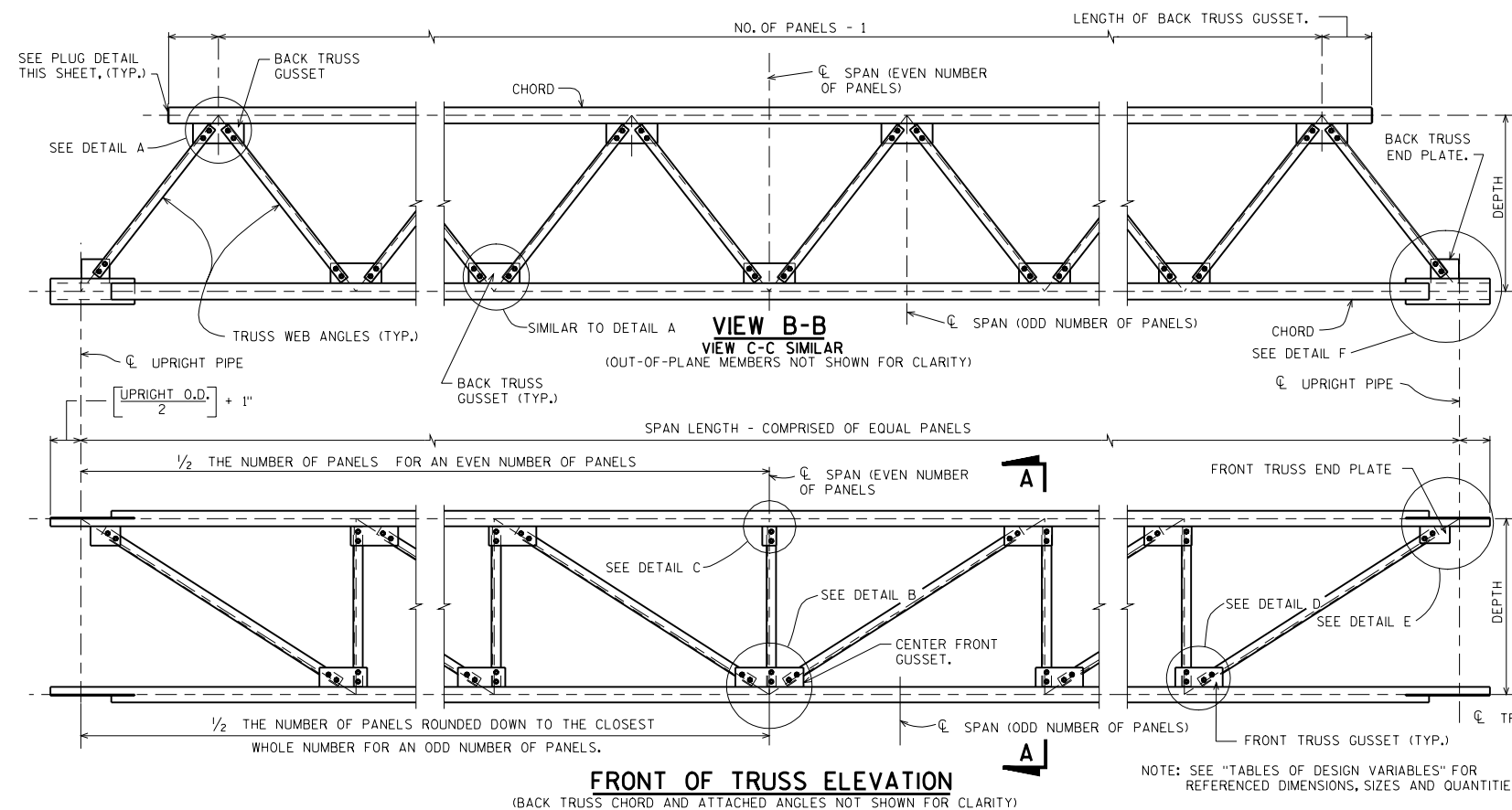
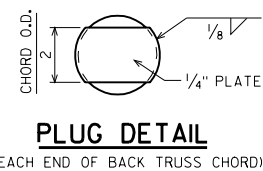
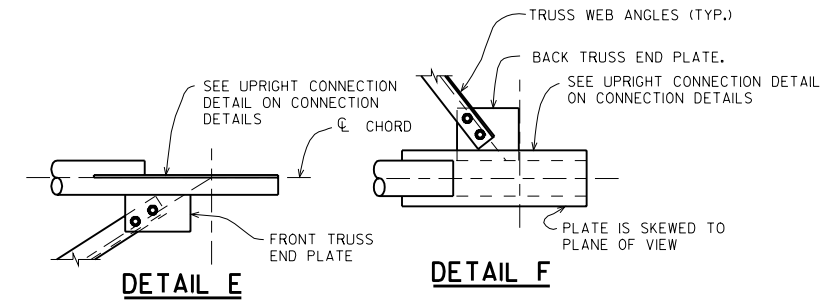
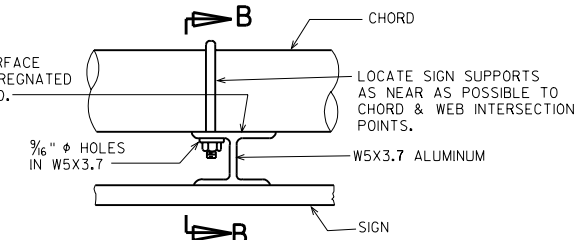
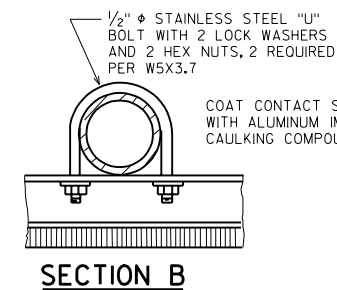
*CHORD SIZE (O.D. X t)	NUMBER OF BOLTS REQ'D.	BOLT CIRCLE DIAMETER	FLANGE THICKNESS	OUTSIDE WELD SIZE

*PIPE OUTSIDE DIAM. IN INCHES X PIPE WALL THICKNESS IN INCHES



TYPICAL WELDED ALTERNATE
(GUSSET PLATE DESIGN IS BASED ON BOLTED CONNECTION. PLATE SIZES SHALL BE INCREASED IF REQUIRED TO PROVIDE MINIMUM WELD LENGTH FOR ALT. WELDED CONNECTION.)

BOLT SIZE	MINIMUM LENGTH OF 3/16" WELD
5/8"	6 1/2"
3/4"	9 1/2"
7/8"	12 1/2"
1"	16 1/2"

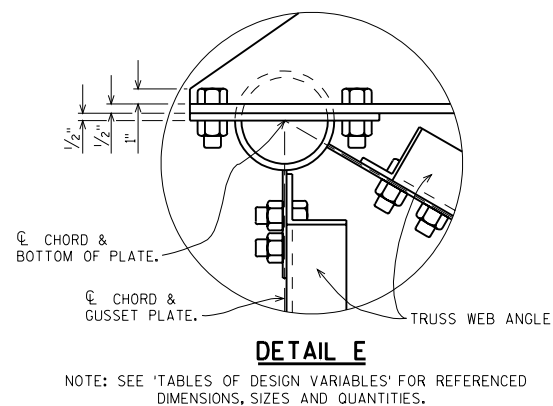
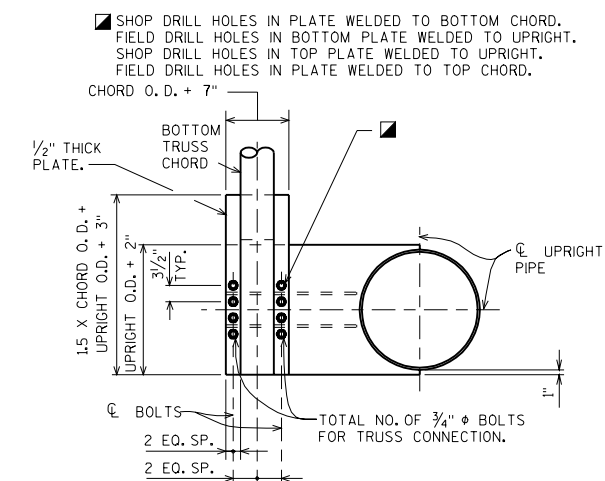
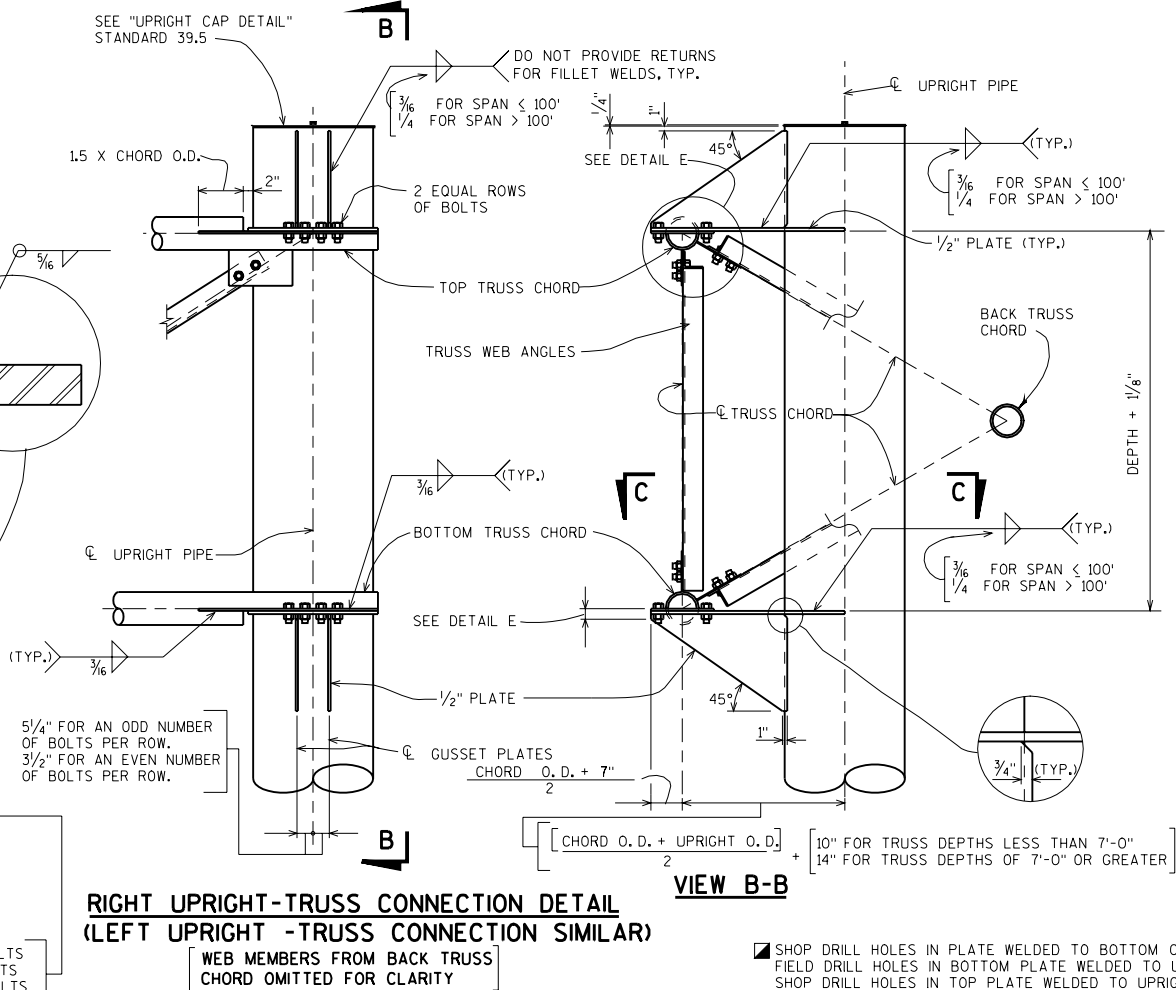
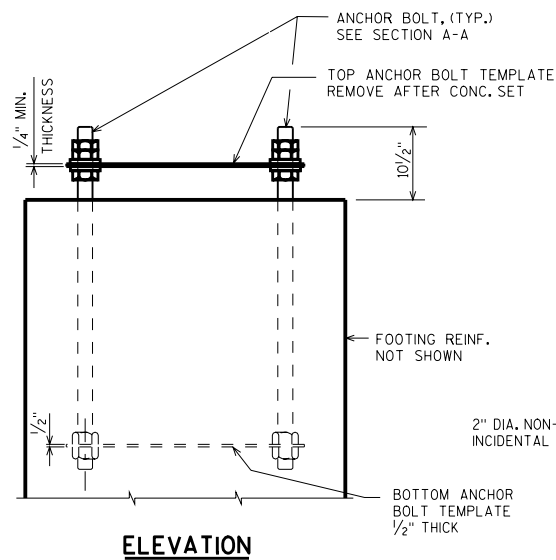


NOTE: SEE "TABLES OF DESIGN VARIABLES" FOR REFERENCED DIMENSIONS, SIZES AND QUANTITIES.

3-CHORD STEEL SIGN BRIDGE TRUSS ELEVATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: _____ DATE: 1/99

[illegible]

*PIPE OUTSIDE DIAMETER IN INCHES X PIPE WALL THICKNESS IN INCHES

TRUSS DESIGN								
STRUCTURE	SPAN (FT.)	DEPTH (IN.)	CHORD SIZE ①	WEB ANGLE SIZE (IN.)	PANELS (NO. & LENGTH)	WEB BOLT SIZE	TRUSS CONN. ②	CAMBER (IN.)

GUSSET PLATE DESIGN								
STRUCTURE	SPAN (FT.)	THICK- NESS	BACK TRUSS	FRONT TRUSS	CENTER FRONT	BACK TRUSS END PLATE	FRONT TRUSS END PLATE	WELD SIZE

- ① OUTSIDE DIAMETER (O.D.) X WALL THICKNESS IN INCHES.
- ② NUMBER OF A325 3/4" ϕ BOLTS PER CONNECTION.
(NOTE: ONE TRUSS HAS FOUR CONNECTIONS.)
- ③ "HEIGHT" IS MEASURED FROM ϕ TRUSS TO BOTTOM OF BASE PLATE.
LEFT AND RIGHT SIDES ARE WITH RESPECT TO THE DIRECTION VIEWED
FROM AS SHOWN ON "SIGN BRIDGE LAYOUT" SHEET.

UPRIGHT DESIGN				
STRUCTURE	SPAN (FT.)	"HEIGHT" (FT.) ③		UPRIGHT SIZE ①
		LEFT	RIGHT	

- NOTES
- DESIGN IS TO BE BASED ON THE FOLLOWING:
1. MAXIMUM SIGN DEPTH = 12'-0"

2. SIGN AREA EQUAL TO (6 X SPAN) X 12 FEET HIGH.

3. NO CATWALK.

4. ONE DIRECTION TRAFFIC (SIGNS ON ONE SIDE).

5. NO FUTURE WIDENING OR RAISING OF STRUCTURE PLANNED.

6. TYPE 1 SIGN PANELS (EXTRUDED ALUMINUM SECTIONS WITH REFLECTIVE BACKING) & ALUMINUM BRACKETS.

7. DESIGN 4 CHORD SYSTEM (PER STANDARD 39.2 & 39.3) WHEN ANY OF CRITERIA (1) THROUGH (6) ARE VIOLATED.

8. SIGNS TO BE CENTERED ON TRUSS.

9. DESIGNER IS TO PROVIDE DESIGN (FILL IN DESIGN VARIABLE BOXES IN TABLE ABOVE AND AS SHOWN ON STANDARDS 39.5 & 39.6) FOR EACH SIGN BRIDGE STRUCTURE. OTHER DETAILS SHOWN IN STD. 39.5 & 39.6 ARE ADEQUATE PROVIDED THE CRITERIA SHOWN ABOVE AND IN THE BRIDGE MANUAL ARE FOLLOWED.

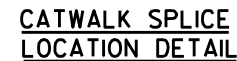
10. STRUCTURE IS ANALYZED AS A SPACE FRAME WITH CHORDS BEING CONSIDERED CONTINUOUS MEMBERS PINNED TO THE UPRIGHT BRACKETS. WEB MEMBERS ARE CONSIDERED PINNED AT ENDS BUT ARE DESIGNED FOR ECCENTRIC END CONNECTIONS.

3-CHORD STEEL SIGN BRIDGE
DESIGN VARIABLES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: _____

DATE:
1/99



3'-6 $\frac{1}{4}$ "

1 $\frac{3}{4}$ "

$\frac{7}{8}$ "

1 $\frac{1}{2}$ "

4 $\frac{1}{2}$ "

1 $\frac{3}{4}$ "

5 $\frac{1}{6}$ "

6"

3"

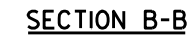
1 $\frac{1}{2}$ "

4 $\frac{1}{2}$ "

10"

3/16" ϕ HOLE FOR 1/2" ϕ ROD.

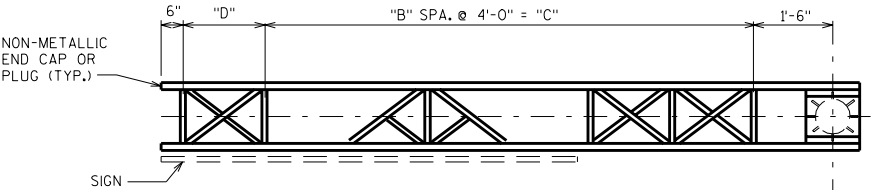
3/16" TYP



APPROVED: _____

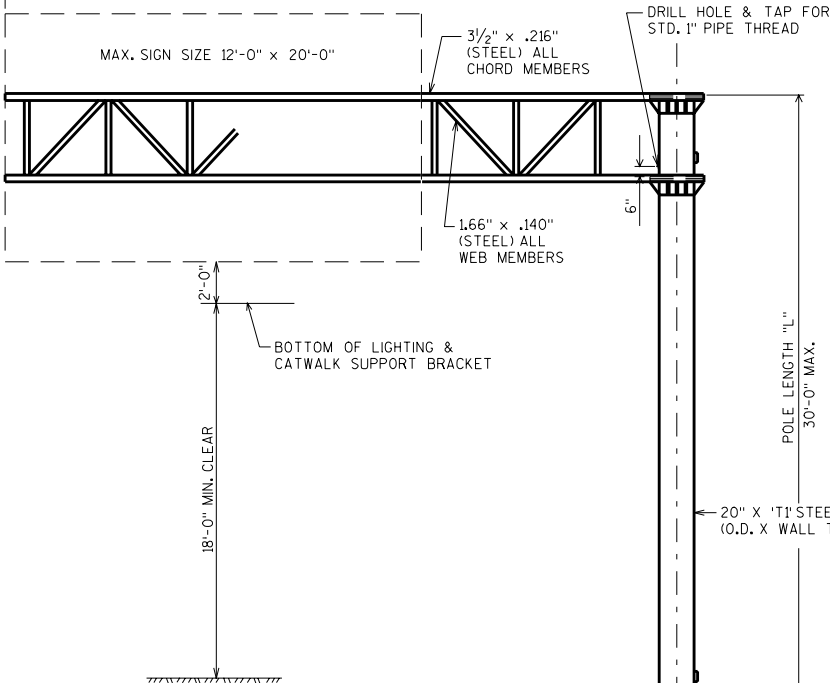
STANDARD	39.9
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END PANEL "D" = 2'-0" MINIMUM
= 6'-0" MAXIMUM



PLAN

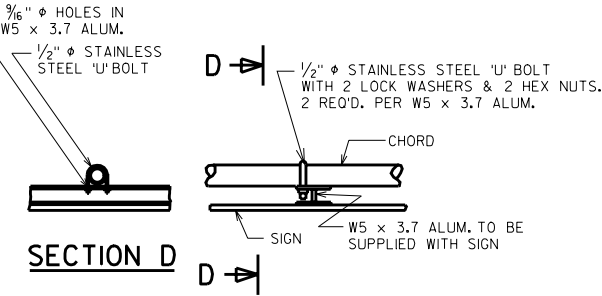
LENGTH "A" END OF TRUSS TO C COLUMN
33'-0" MAX.



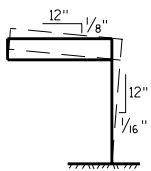
ELEVATION

END VIEW

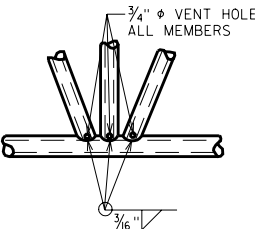
STRUCTURE	"A"	"L"	"B"	"C"	"T1"	"D"



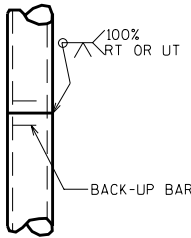
TYPICAL SIGN CONNECTION



CAMBER DIAGRAM



TRUSS JOINT DETAILS



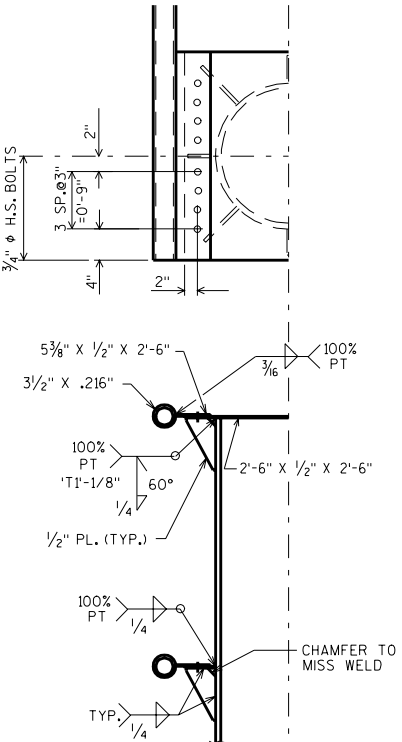
OPTIONAL COLUMN OR CHORD SPLICE DETAIL

GENERAL NOTES

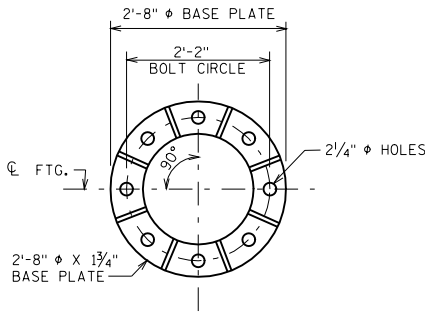
DRAWINGS SHALL NOT BE SCALED.
DESIGNED ACCORDING TO A.A.S.H.T.O. "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS"
WIND VELOCITY = 85 M.P.H.

ALLOWABLE DESIGN STRESSES

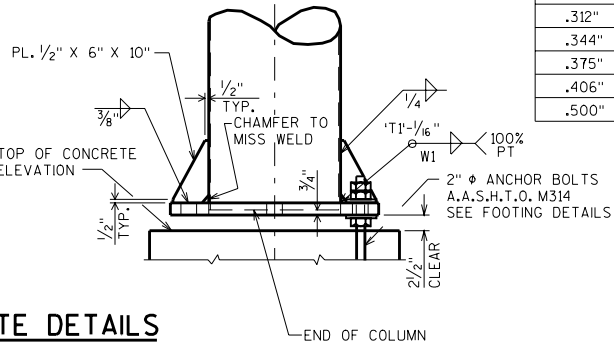
CHORDS & COLUMN (INCLD. HANDHOLE) — API-5L-X42 — fy=42,000 P.S.I.
ALL OTHER PIPE — A53, GRADE B — fy=35,000 P.S.I.
PLATES & BARS — A709 — fy=36,000 P.S.I.
ANCHOR BOLTS — A.A.S.H.T.O. M314 — fy=55,000 P.S.I.
HIGH STRENGTH BOLTS — A325 — fy=92,000 P.S.I.
STRUCTURAL MEMBERS GALVANIZED A123
HARDWARE GALVANIZED — A153 CLASS C



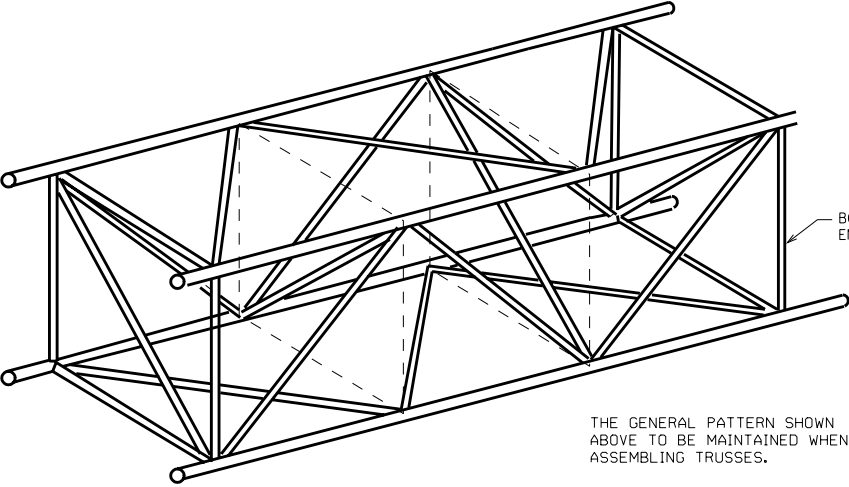
TRUSS TO COLUMN CONNECTION DETAILS



BASE PLATE DETAILS



WELD SIZE "W1"	POLE "T1"	"W1"
.281"	1/4"	1/4"
.312"	1/4"	1/4"
.344"	5/16"	5/16"
.375"	3/8"	3/8"
.406"	3/8"	3/8"
.500"	3/8"	3/8"



TYPICAL TRUSS SECTION

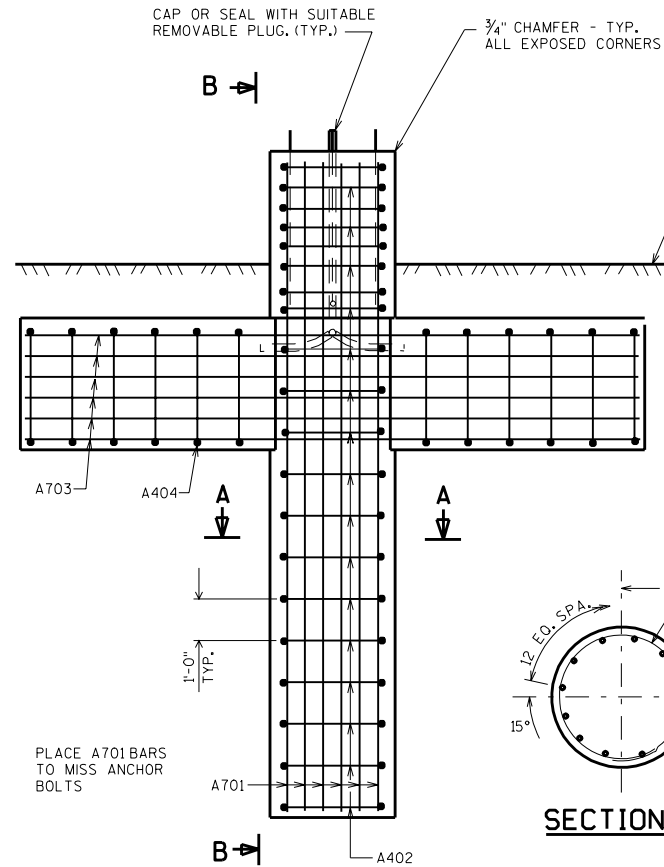
THE GENERAL PATTERN SHOWN ABOVE TO BE MAINTAINED WHEN ASSEMBLING TRUSSES.

GALVANIZED STEEL CANTILEVER SIGN TRUSS

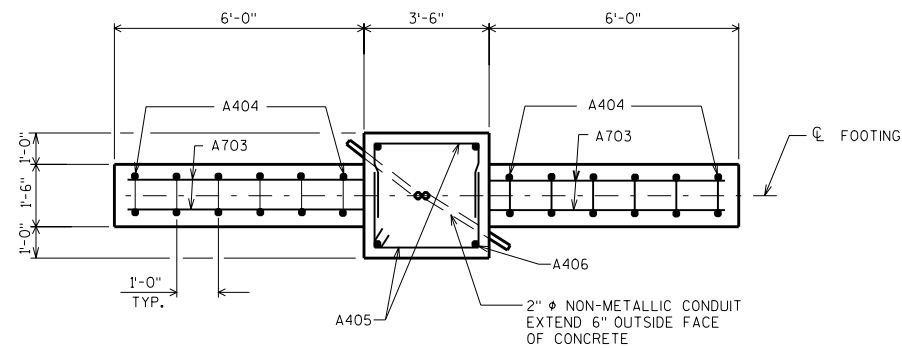
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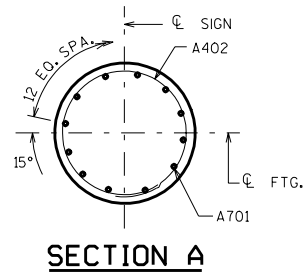
DATE:
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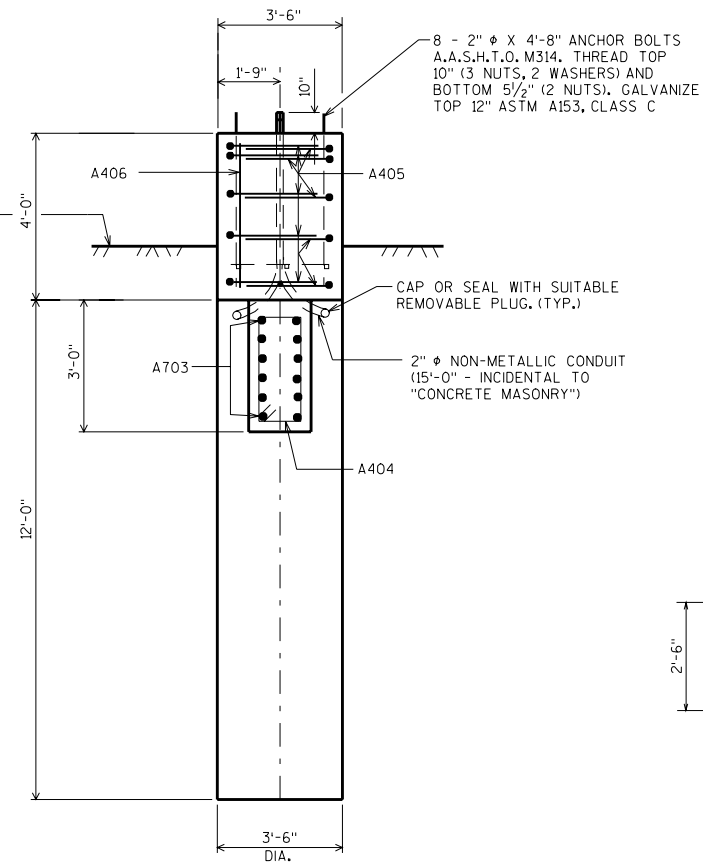
ELEVATION
(8 C.Y.)



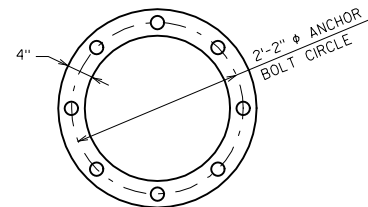
PLAN



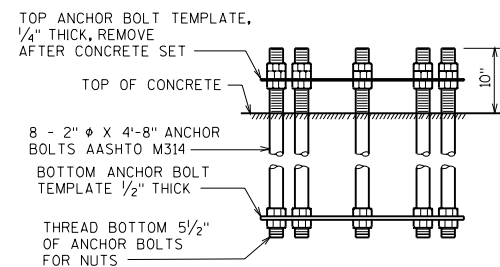
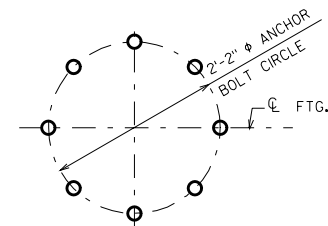
SECTION A



SECTION B



TOP VIEW OF TOP & BOTTOM TEMPLATES



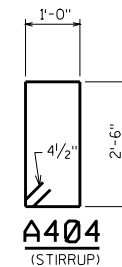
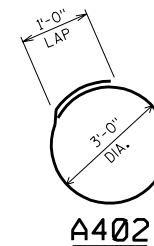
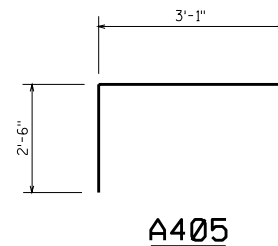
ANCHOR BOLT DETAILS

NOTE:
THE FIRST OR FIRST TWO DIGITS OF A
BAR MARK SIGNIFIES THE BAR SIZE.

BILL OF BARS

980 LB.

BAR MARK	COAT	NO. REQ'D	LENGTH	BEVT	CUT. DIAG.	BUN-DLE	LOCATION
A701		12	15'-6"				FOOTING - COLUMN/TOP
A402		16	10'-6"	X			FOOTING - COLUMN/TOP
A703		12	15'-0"				FOOTING - WINGS
A404		12	7'-6"	X			FOOTING - WINGS
A405		10	7'-11"	X			FOOTING - TOP
A406		4	3'-6"				FOOTING - TOP - COLUMNS



GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
BAR STEEL REINFORCEMENT SHALL
BE EMBEDDED 3" CLEAR UNLESS
DETAILED OTHERWISE.

ALLOWABLE DESIGN STRESSES

CONCRETE MASONRY $f'_c=3,500$ P.S.I.
HIGH STRENGTH BAR STEEL REINFORCEMENT, $f_y=60,000$ P.S.I.
ANCHOR BOLTS A.A.S.H.T.O. M314 $f_y=55,000$ P.S.I.

FOUNDATION DATA

ALLOWABLE SOIL BEARING PRESSURE = 2T/SQ. FT.

TOTAL ESTIMATED QUANTITIES (1 FTG.)

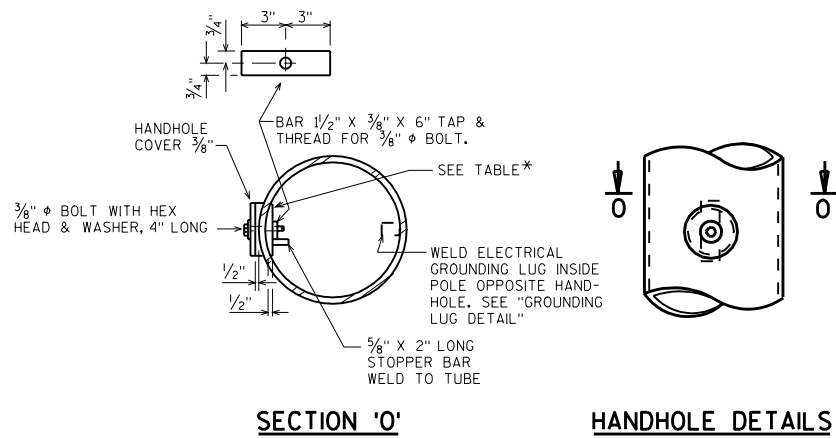
CONCRETE MASONRY, SIGN SUPPORTS 8 C.Y.
HIGH STRENGTH BAR STEEL REINFORCEMENT, SIGN SUPPORTS 980 LB.

**CANTILEVER
TRUSS FOOTING**

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SECTION 'O'

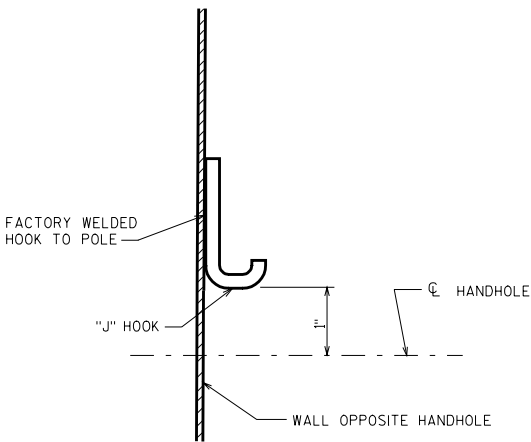
HANDHOLE DETAILS

HANDHOLE NOTES

HANDHOLES SHALL BE LOCATED IN ONE COLUMNS OF THE SIGN BRIDGE STRUCTURE IF ELECTRICALLY OPERATED DEVICES ARE INSTALLED ON/IN THE STRUCTURE. COLUMNS WITH HANDHOLES SHALL BE NEAR THE ELECTRICAL SERVICE. THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE ELECTRICAL SERVICE ENTRANCE WITH THE DISTRICT TRAFFIC SECTION PRIOR TO FABRICATION OF THE SIGN BRIDGE COLUMNS AND MEMBERS. CONDUIT (AS REQ'D.) SHALL BE LOCATED, PLACED AND SIZED AS SHOWN ON THE ELECTRICAL DETAIL PLAN SHEETS.

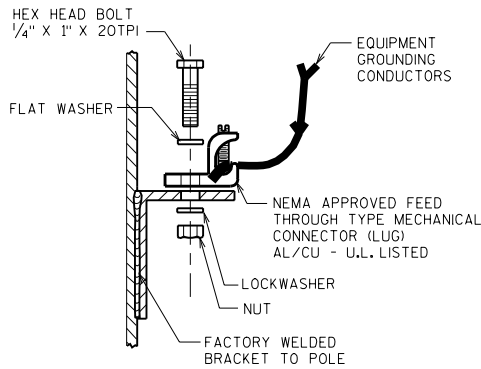
*

UPRIGHT DIAM. SIZE	HANDHOLE PIPE O.D. X MIN. THK.
UP TO AND INCLD. 16" X .375"	5.562" X .500"
GREATER THAN 16" X .375" TO AND INCLD. 24" X .562"	6.625" X .562"



TYPICAL "J" HOOK LOCATION

THE "J" HOOK SHALL BE FACTORY WELDED TO THE INSIDE OF ALL COLUMNS CONTAINING ELECTRICAL WIRING. THE "J" HOOK SHALL BE ATTACHED ABOVE THE CENTERLINE OF THE UPPER HANDHOLE AND MOUNTED DIRECTLY OPPOSITE THE HANDHOLE AS SHOWN IN THE DRAWING.



GROUNDING LUG DETAIL

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

HANDHOLE DETAILS

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